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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/694,832 | 10/29/2003 | Jaemin Lim | Q76050 | 9459 |

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| EXAMINER | |
|---|---|
| BATAILLE, PIERRE MICHE | |
| **ART UNIT** | **PAPER NUMBER** |
| 2186 | |

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/694,832 | LIM ET AL. | |
| | Examiner | Art Unit | |
| | Pierre-Michel Bataille | 2186 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *2 7 12-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6 and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. The present Office Action is taken in response to applicant's communication filed September 1, 2006 responding to communication filed August 1, 2006. Applicant's amendment and or arguments have been considered with the results that follow.

2. Claims 1, 3-6, and 8-11 are pending in the application under prosecution as claims 2, 7, and 12-13 have been canceled.

### *Response to Arguments*

3. Applicant's arguments with respect to claims 1, 3-6, and 8-11 have been considered but are moot in view of the new ground(s) of rejection.

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors.

The following objection is noted:

Claims 3, 5 are noted dependent upon claim 2, which has been canceled by applicant's amendment.

It is noted that the documents submitted with the amendment are not totally readable due to fax/scanning error. Applicant is requested to submit a complete listing of the claims in subsequent Office action whether or not the applicant intents to amend the claims.

Please note that these are simply exemplary. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3-6, and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,601,167 (Gibson et al).

With respect to claims 1, 6, and 8, Gibson discloses the invention as claimed, an apparatus having a flash memory chip and method for controlling execute-in-place (XIP) in a serial flash, comprising:

> a cache module for accessing a designated memory address of the serial flash in response to a command received from a main control unit through a system interface unit, and reading or writing data required by the main control unit in a read or write operation ***(execute-in-place volatile random access***

***memory or alternative cache or other memory in processor) [Col. 5, Lines 14-19]***;

a serial flash controller comprising a boot loader for allowing system booting to be performed by reading boot codes written on the serial flash ***(logic circuitry of sequential access memory 32 required for performing boot loader function) [Fig. 8; Col. 6, Lines 2-8]***, storing the boot codes in a buffer and immediately transmitting the boot codes to the main control unit when the main control unit requires the boot codes **(boot code copied from sequential access memory 32 to execute-in-place volatile random access memory upon initialization of the computer system) [Col. 6, Lines 53-67; Col. 5, Lines 13-19]**; and

a flash interface unit for handling transmission and reception of data among the cache module, the serial flash controller and the serial flash **(micro-controller based systems generally have Programmable Input/Output (PIO) pins available which can be used to directly provide the UltraNAND control signals or some additional interface logic required for an appropriate connection between the processor, boot loader and sequential memory) [Col. 6, Lines 23-28]**;

the cache module comprising:

a cache controller that if read operation is required by main control unit access the serial flash, read a page to which the desired memory address belongs and transmits data in the read page corresponding to the

designated memory address to the main control unit ***(general principle of cache memory as cache memory is used to temporary storage to make data available at fast pace)*** **Gibson discloses gapless read enabled reading code from cache memory at determined address page location [Col. 3, line 52 to col. 4, Line 34]**;

tag storing unit on which storage information on the read page is written in response to an operation control of the cache controller; and a data storing unit on which the read page is written **(general principle of cache memory as most cache memories have a data storage unit section and a tag storage unit section, the data storage unit section for storing the data and the tag storage unit section for storing tag information related to the data) Gibson discloses gapless read enabled reading code from cache memory at determined address page location [Col. 3, line 52 to col. 4, Line 34].**

With respect to claims 3-5, 9-11, Gibson discloses the boot program being configured to anticipate the behavior of any code prefetching logic and ensure that data expected to be required by the control unit is stored in the buffer [Table 2 & 3; Col. 12, Lines 33-44; Col. 13, Lines 7-13]. Gigson discloses that many processors have an instruction fetch state machine that reads instructions into a buffer ahead of the actual use of instructions by the instruction execution state machine of the processor [Col. 4, Lines 46-49].

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 7,058,779 (McClain) teaching Computer system initialization via boot code stored in a non-volatile memory having an interface compatible with synchronous dynamic random access memory

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (571) 272-4178. The examiner can normally be reached on Mon-Fri (8:00A to 4:30P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Pierre-Michel Bataille
Primary Examiner
Art Unit 2186

October 15, 2006

PIERRE BATAILLE
PRIMARY EXAMINER